

What is claimed is:

[Claim 1] 1. An injection mold assembly for golf balls comprising:

a first mold half having a plurality of cavities and a first pin having a base with a first diameter and a first taper section with a diameter smaller than the first diameter;

a second mold half having a plurality of cavities and a first bushing for engagement with the first pin of the first mold assembly, the first bushing having a main cavity with a first diameter and a first cavity with a diameter smaller than the diameter of the main cavity; and

a spring for exerting a lateral force against the second mold half during disengagement of the first mold half from the second mold half.

[Claim 2] 2. The injection mold assembly according to claim 1 wherein the first pin of the first mold half has a second taper section with a diameter smaller than the diameter of the first taper section, and the first bushing of the second mold half has a second cavity with a diameter smaller than the diameter of the first cavity.

[Claim 3] 3. The injection mold assembly according to claim 1 wherein the first mold half further comprises a second pin having a base with a first diameter and a first taper section with a diameter smaller than the first diameter, and the second mold half further comprises a second bushing for engagement with the second pin of the first mold assembly, the second bushing having a main cavity with a first diameter and a first cavity with a diameter smaller than the diameter of the main cavity.

[Claim 4] 4. The injection mold assembly according to claim 1 further comprising a means for injecting a molding material into each of the plurality of cavities of the second mold half and the first mold half.

[Claim 5] 5. The injection mold assembly according to claim 1 wherein the spring for exerting a lateral force against the second mold half is adjustable.

[Claim 6] 6. The injection mold assembly according to claim 1 further comprising means for reaction injection molding a polyurethane material into each of the plurality of cavities of the second mold half and the first mold half.

[Claim 7] 7. A method for de-molding a plurality of golf balls or golf ball precursor products from an injection mold assembly, the method comprising:

injecting a polymer material into a plurality of cavities of a mold to form a layer for a golf ball, the mold comprising a first mold half and a second mold half engaged together, the first mold half having a first pin comprising a base and a first taper section, the second mold half having a first bushing with a main cavity and a first cavity, the first pin of the first mold half engaged within the first bushing of the second mold half;

exerting a lateral force on the second mold half;

separating the first mold half from the second mold half; and

forcing the second mold half to be laterally displaced from the first mold half.

[Claim 8] 8. The method according to claim 7 wherein the first mold half further comprises a second pin having a base with a first radius and a first taper section with a second radius smaller than the first radius, and the second mold half further comprises a second bushing for engagement with the second pin of the first mold assembly, the second bushing having a main cavity with a first

radius and a first cavity with a second radius smaller than the first radius of the main cavity.

[Claim 9] 9. The method according to claim 7 wherein the first mold half is separated from the second mold half along a vertical axis and the lateral force is exerted along a horizontal axis perpendicular to the vertical axis.

[Claim 10] 10. The method according to claim 7 wherein injecting a polymer material comprises injecting a reaction injection polyurethane material.

[Claim 11] 11. The method according to claim 7 wherein the first pin of the first mold half has a second taper section with a third radius smaller than a second radius of the first taper section, and the first bushing of the second mold half has a second cavity with a third radius smaller than a second radius of the first cavity.

[Claim 12] 12. The method according to claim 11 further comprising separating the first mold half from the second mold half a first vertical distance corresponding to a length of the second cavity and laterally moving the second mold half from the first mold half a first lateral distance.

[Claim 13] 13. The method according to claim 12 wherein the first lateral distance corresponds to the remainder of the second radius of the first cavity of the first bushing minus the third radius of the second cavity of the first bushing.

[Claim 14] 14. The method according to claim 12 further comprising separating the first mold half from the second mold half

a second vertical distance corresponding to a length of the first cavity of the first bushing and laterally moving second mold half from the first mold half a second lateral distance.

[Claim 15] 15. The method according to claim 14 wherein the second lateral distance corresponds to the remainder of the first radius of the main cavity of the minus the second radius of the first cavity of the first bushing.

[Claim 16] 16. A method for de-molding a plurality of golf balls or golf ball precursor products from an injection mold assembly, the method comprising:

injecting a polymer material into a plurality of cavities of a mold to form a layer for a golf ball, the mold comprising a first mold half and a second mold half engaged together, the first mold half having a first pin comprising a base, a first taper section and a second taper section, the second mold half having a first bushing with a first cavity, a second cavity and a third cavity, the first pin of the first mold half engaged within the first bushing of the second mold half;

exerting a lateral force on the second mold half by use of a spring assembly;

vertically separating the first mold half from the second mold half a first vertical distance corresponding to a depth of the first cavity and laterally moving the second mold half relative to the first mold half a first lateral distance, the first lateral distance corresponding to a radius of the first cavity; and

vertically separating the first mold half from the second mold half a second vertical distance corresponding to a depth of the second cavity and laterally moving the second mold half relative to the first mold half a second lateral distance, the second lateral distance corresponding to a radius of the second cavity minus the radius of the first cavity.